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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,010	05/05/2005	Theodore L. DeWeese	59564(71699)	2794

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EXAMINER

CHONG, KIMBERLY

ART UNIT

PAPER NUMBER

1635

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DELIVERY MODE

02/11/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,010

Applicant(s)

DEWEESE ET AL.

Examiner

KIMBERLY CHONG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Request for Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/16/2009 has been entered.

Status of Application/Amendment/Claims

Applicant's response filed 10/20/2008 has been considered. Rejections and/or objections not reiterated from the previous office action mailed 01/08/2008 are hereby withdrawn. The following rejections and/or objections are either newly applied or are reiterated and are the only rejections and/or objections presently applied to the instant application. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

With entry of the amendment filed 01/16/2008, claims 1, 3 and 23 are pending in the application. Applicant has canceled claims 2, 4-22, and 24-51.

Response to Applicant's Arguments

Re: Drawings

The drawings filed on 05/05/2005 remain objected to under 37 CFR 1.83(a) for the reasons of record. Applicants indicate they are preparing new drawings and will submit such drawings under a separate cover.

Re: Claim Rejections - 35 USC § 112

The rejection of claims 1 and 3 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn.

Re: Claim Rejections - 35 USC § 112

The rejection of record of claims 1, 3 and 23 under 35 U.S.C. 112, first paragraph, is maintained for the reasons of record in the Office action filed 01/08/2008.

Applicant's arguments filed 01/16/2009 have been fully considered but they are not persuasive. Applicants argue that the amended claims recite the siRNA is encoded by the nucleic acid molecule specific for the DNA repair protein ATM and the specification beginning at page [0078] enables the claimed invention because the specification teaches step by step how the method would be carried out.

These arguments are not convincing as stated in the previous Office action, the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art and

as evidence by the cited references the level of predictability is considered variable and not considered to provide sufficient enablement for the claimed invention. Further Applicant's argument pointing to the specification disclosing prophetically how to construct a siRNA and deliver the siRNA using expression vectors as well as disclosing delivery of the siRNA in a variety of ways using varying dosages is not considered to provide sufficient enablement for the claimed invention. At best, the prophetic methods in the specification in view of the state of the prior art at the time of the instant invention invites further experimentation to find a method of efficiently delivering siRNA to a cell or organism in vivo such that stability of the siRNA is achieved in vivo, the siRNA targets the specific tumor cell or tissue, the siRNA effective dosage and levels of toxicity are determined, sufficient entry of the siRNA into the tumor cell in vivo and the effective action therein, namely inhibition of expression of an ATM DNA repair protein, such that the tumor cells are killed thereby effectuating a treatment for cancer.

Applicant argues that Example 1 describes enhanced radiation and chemotherapy-mediated cell killing of human cancer cells by silencing of DNA repair factors, including ATM and therefore the specification as filed enables one of skill in the art to make and/or use the invention as claimed. The results shown in Example 1 do not address all the concerns regarding unpredictability of silencing using siRNA as outline in the cited references and as stated above invites further experimentation to find a method of efficiently delivering siRNA to a cell or organism in vivo such that stability of the siRNA is achieved in vivo, the siRNA targets the specific tumor cell or tissue, the siRNA effective dosage and levels of toxicity are determined, sufficient entry

of the siRNA into the tumor cell in vivo and the effective action therein, namely inhibition of expression of an ATM DNA repair protein, such that the tumor cells are killed thereby effectuating a treatment for cancer.

Thus, the scope of the claims in view of the specification as filed together do not reconcile the unpredictability in the art to enable one of skill in the art to make and/or use the claimed invention. Without further guidance, one of skill in the art would have to practice a substantial amount of trial and error experimentation, an amount considered undue and not routine, to practice the instantly claimed invention.

Re: Claim Rejections - 35 USC § 103

The rejection of claims 1 and 3 as being rejection under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (Cancer Gene Therapy 2000, Vol. 7, No. 10: 1307-1314), Hammond et al. and Tuschl et al (WO 02/44321) is maintained for the reasons of record.

Applicant's arguments filed 01/16/2009 have been fully considered but they are not persuasive. Applicant argues the Fan et al. reference fails to teach or suggest contacting tumor cells with siRNA and point out again that antisense and siRNA are two different non-analogous methodologies for silencing gene expression.

In response, Fan et al. teach generation of an antisense molecule from the transcriptional start domain of the human ATM gene having nucleotides 188 to 445 which comprises nucleotides 395 to 445 of SEQ ID No. 4 (see Figure 15, Oligo-A). As amended the claims are drawn to a siRNA encoded by a nucleic acid sequence that is

at least 95% identical to SEQ ID No. 4, wherein the molecule is specific for DNA repair protein ATM and does not state targeting a specific region of the DNA repair protein ATM. Fan et al. teach generation of an antisense compound from the transcriptional start domain region of the human ATM DNA repair gene that is 100% identical to a portion of SEQ ID NO. 4. Fan et al. identified efficient antisense molecules targeted to a specific region that were capable of down regulating expression of the ATM DNA repair protein when administered to human prostate cancer cells and as discussed in the rejection of record, one of ordinary skill in the art would have wanted to generate a siRNA molecule to this region of an ATM gene to more efficiently inhibit expression of DNA repair protein in a method of killing a tumor cell given siRNAs were well known in the art at the time of the instant filing to be more efficient at silencing gene expression than antisense molecules.

Thus the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and the rejection of record is maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Chong whose telephone number is 571-272-3111. The examiner can normally be reached Monday thru Friday between 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James (Doug) Schultz can be reached at 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight

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(EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

/Kimberly Chong/
Examiner
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